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OPERATING SUMMARY

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PRESCOTT

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Ontario

Ministry of the
Environment

135 St. Clair Avenue West
Toronto 195, Ontario

We are pleased to present you with the 1972 operating summary for the water pollution control plant serving your community.

This summary contains data on the performance of the plant as well as relevant financial information. Of particular interest is the review of the year's activities in which significant items of these data are discussed in some detail by the operations engineer and his staff who, by their day-to-day involvement with the operation, are thoroughly familiar with the plant.

We appreciate your continuing interest in protecting the environment through the efficient operation of this wastewater treatment facility.

D.S. Caverly,
Assistant Deputy Minister.

D.A. McTavish, P. Eng.,
Director,
Project Operations Branch.

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B.W. Hansler

OPERATIONS ENGINEER
J. Dick

135 St. Clair Avenue West
Toronto 195

PRESCOTT

WATER POLLUTION CONTROL PLANT

operated for

THE TOWN OF PRESCOTT

by the

MINISTRY OF THE ENVIRONMENT

1972 ANNUAL OPERATING SUMMARY

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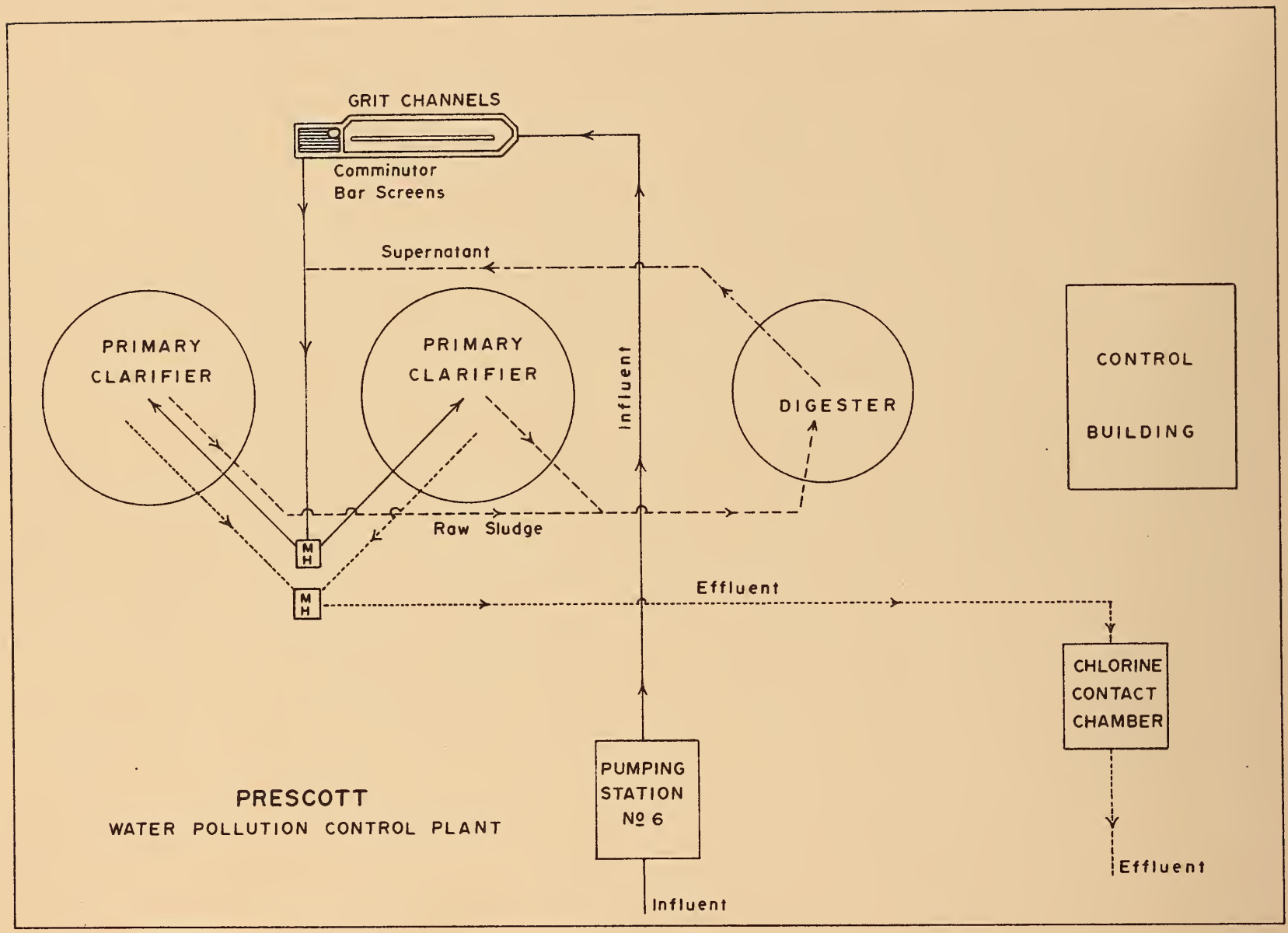
GRIT CHANNELS
Comminutor
Bar Screens
Supernatant
PRIMARY
CLARIFIER
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Influent
DIGESTER
CONTROL
BUILDING
Raw Sludge
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Effluent
CHLORINE
CONTACT
CHAMBER
PUMPING
STATION
Nº 6
PRESCOTT
WATER POLLUTION CONTROL PLANT
Effluent
Influent

DESIGN DATA

PROJECT NO. 1-0023-66

TREATMENT Primary

DESIGN FLOW 1.0 MIGD

PRIMARY TREATMENT

Grit Removal

Type: Manually cleaned
Size: Two 26'2" x 3'9" x 3'4"
Flow Velocity: 1.0 fps

Screening

Type: Manually cleaned
Size: 1" openings

Comminution

Type: Worthington #15-5

Primary Sedimentation

Type: Dorr-Oliver
Size: Two 35' dia x 9' swd.
(108,000 I. gals. total)
Retention: $2\frac{1}{2}$ hours
Loading: Surface 1,000 I. gals/ft^2/day
Weir, 10,000 I. gals/ft/day

CHLORINATION

Type: Wallace & Tiernan A-831
Size: Two 50 lbs/day each

Chlorine Contact Chamber

Size: 33,800 gal.
Retention: 30 minutes

OUTFALL

1650' 42" dia. concrete pipe to
St. Lawrence River

SLUDGE HANDLING

Digestion System

Type: Single stage
Size: 35' dia x 18 swd (108,000 I. Gals)
Loading: 1.6 lb/ft^3/mo.
Recirculation Pump: Smart Turner

PUMPING STATION

a) West Street

Two Smart-Turner, each 870 IGPM @ 36' tdh

b) East Street

Two Smart-Turner, each 1410 IGPM @ 44' tdh

c) Highway 2 & Keefer Street

Two Smart-Turner, each 2100 IGPM @ 76' tdh

d) Plant Site

Three Smart-Turner, 1400 IGPM @ 33' tdh

'72 Review

GENERAL

This project consists of 4 pumping stations, a 1.0 migd primary plant with single stage anaerobic digestion and associated forcemains and gravity sewers.

The Prescott water pollution control plant completed its first year of operation at the end of 1972.

Considerable difficulty was experienced at pumping station #4 due to failure of the pump-motor starter contactors on several occasions. This was remedial by converting the power supply from an open delta to a closed delta system and by installing heavier type of contactors. A pump and motor at pumping station #6 were found to be defective and were replaced by the suppliers.

The air relief valve on the forcemain from pumping station #5 did not operate satisfactorily during the year. An improper valve was installed, the problems continued. Efforts are continuing to rectify the problem.

On March 3, 1973, the digester was found to be producing a good burnable gas and on May 30, 1973, the first load of digested sludge was removed from the digester.

A break was discovered in the forcemain from pumping station #5 and repaired temporarily. Permanent repairs will be carried out in the spring of 1973.

EXPENDITURES

The cost of operating the project in 1972 was $38,762.59. This was slightly over the budget of $36,000.00. This represents a cost of $104 per million gallons of sewage or 43 cents per pound of BOD removed.

PLANT FLOWS

A total of 373 million gallons of sewage was treated at the plant during 1972, representing an average flow of 1.02 migd. The plant was operating at or above design capacity for one-third of 1972.

PLANT EFFICIENCY

The average influent BOD and suspended solids concentrations were 58 mg/l and 99 mg/l respectively. The effluent BOD and suspended solids concentrations were 32 mg/l and 34 mg/l respectively, representing a BOD reduction of 45 percent and suspended solids reduction of 66 percent.

SLUDGE DIGESTION AND DISPOSAL

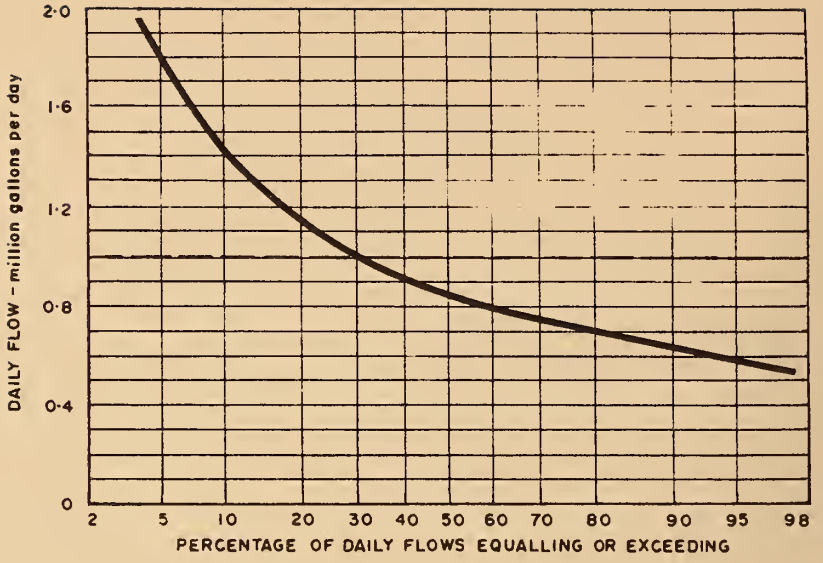
A total of 285,000 gallons of raw sludge with an average total solids concentration of 4.6 percent was pumped to the digester. A total of 5,200 gallons of digested sludge with an average total solids of 5.2 percent was removed by tank truck.

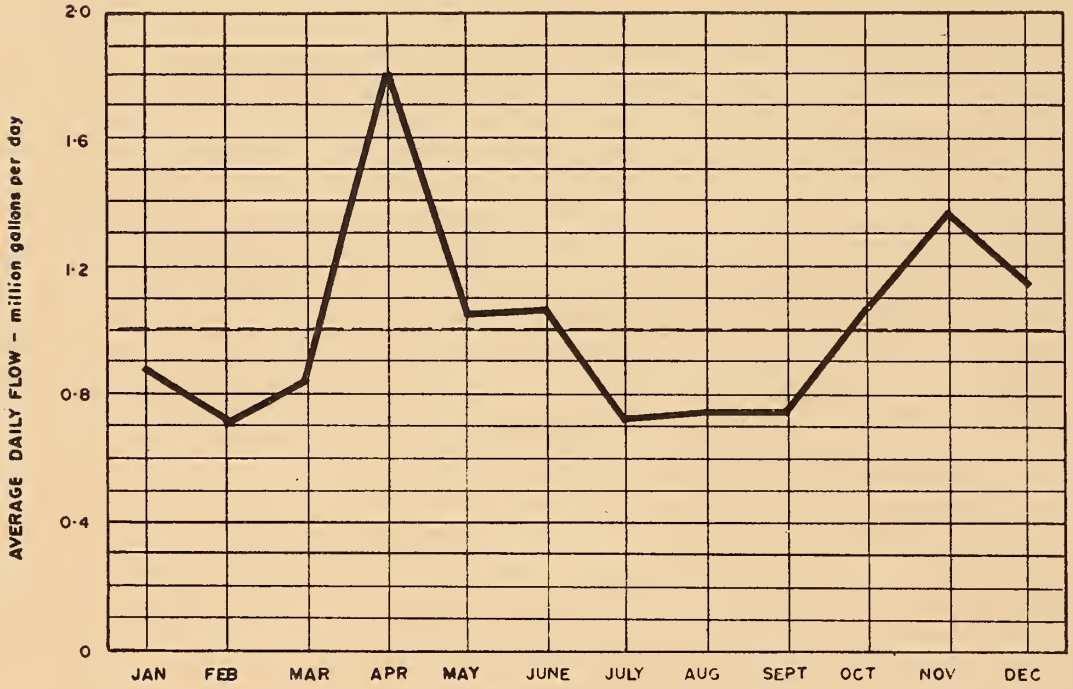
CONCLUSIONS

The plant operated satisfactorily during 1972. Efforts should be made to reduce the flows received by the plant during the spring and fall periods.

PROCESS DATA

FLOWS





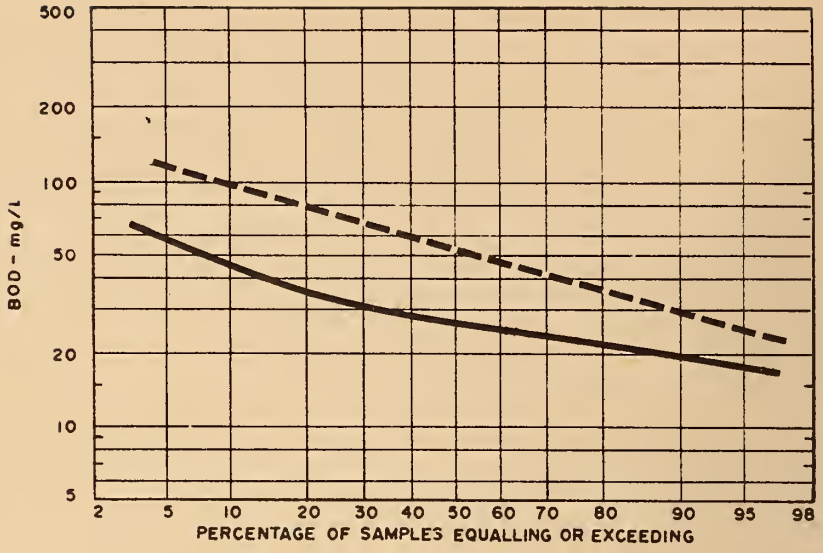
DESIGN CAPACITY _ _ _ _ _ _ _

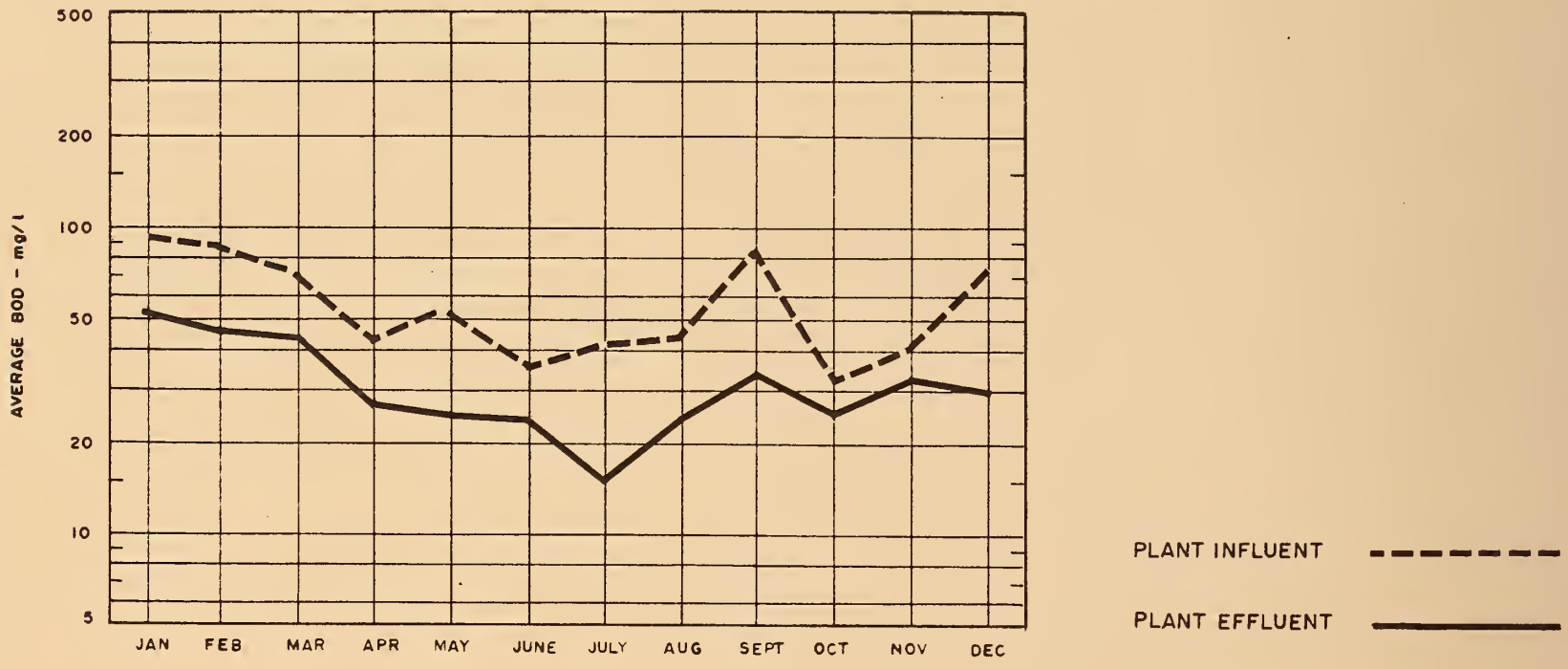
PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10^3 pounds	mg/l	mg/l	%	10^3 pounds	mg/l P	mg/l P
JAN	* 27.6	.89	1.27	95	53	44	11.6	110	33	70	21.2	7.0	3.0
FEB	* 20.4	.70	1.24	88	46	48	8.6	100	35	65	13.2	7.0	3.7
MAR	26.6	.86	1.84	73	44	40	7.3	103	40	61	16.8	3.5	2.3
APR	55.0	1.83	3.03	42	29	31	7.2	48	20	58	15.4	2.9	2.2
MAY	32.5	1.05	1.53	53	26	51	8.8	103	42	59	19.8	4.6	2.5
JUNE	32.3	1.08	2.12	37	25	32	3.9	65	25	62	12.9	4.1	1.9
JULY	21.9	.71	.99	42	15	64	5.9	90	25	72	14.2	4.6	2.2
AUG	23.2	.75	1.03	46	26	43	4.6	75	35	53	9.3	5.1	3.6
SEPT	22.3	.74	1.06	82	35	57	10.5	165	50	70	25.6	7.3	3.5
OCT	33.7	1.09	2.13	33	27	18	2.0	90	30	67	20.2	4.1	2.0
NOV	41.4	1.38	2.81	43	34	21	3.7	100	40	60	24.9	3.2	2.1
DEC	35.8	1.16	2.25	75	30	60	16.1	170	30	82	50.1	4.4	2.1
TOTAL	372.7	-	-	-	-	-	90.2	-	-	-	243.6	-	-
AVG.		1.02	MAXIMUM 3.03	58	32	45	7.5	99	34	66	20.3	4.8	2.6
No. of Samples	-	-	-	24	24	-	-	24	24	-	-	24	24

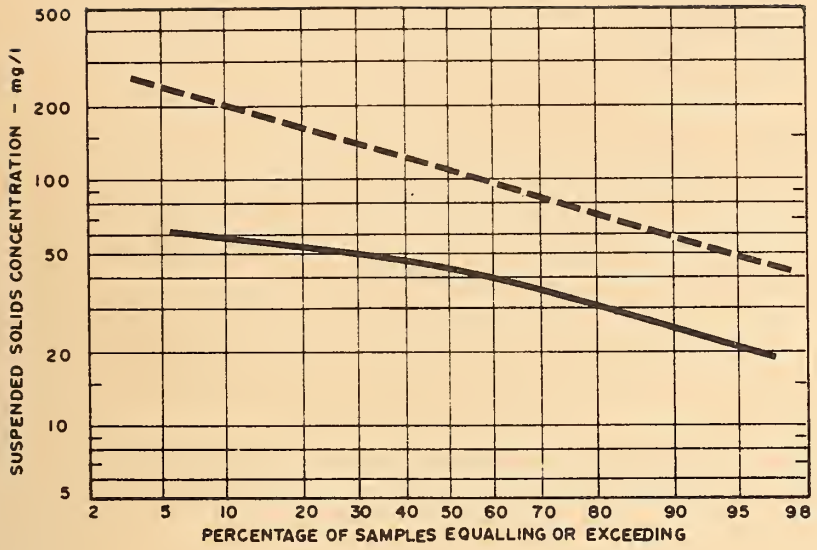
* Estimated flow

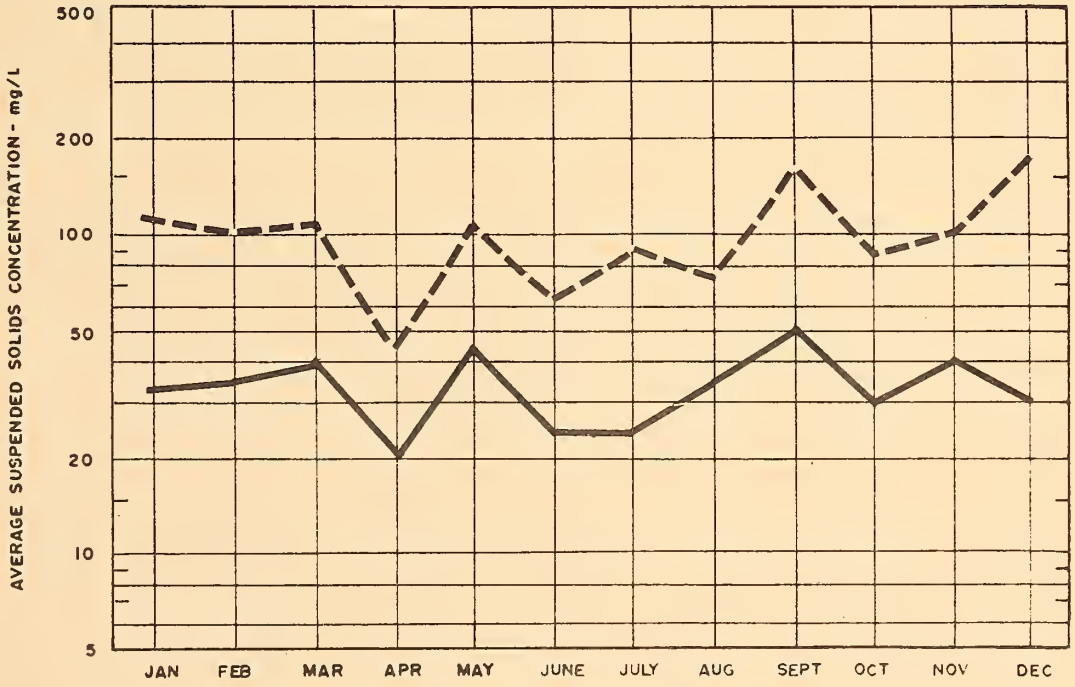
BIOCHEMICAL OXYGEN DEMAND





SUSPENDED SOLIDS

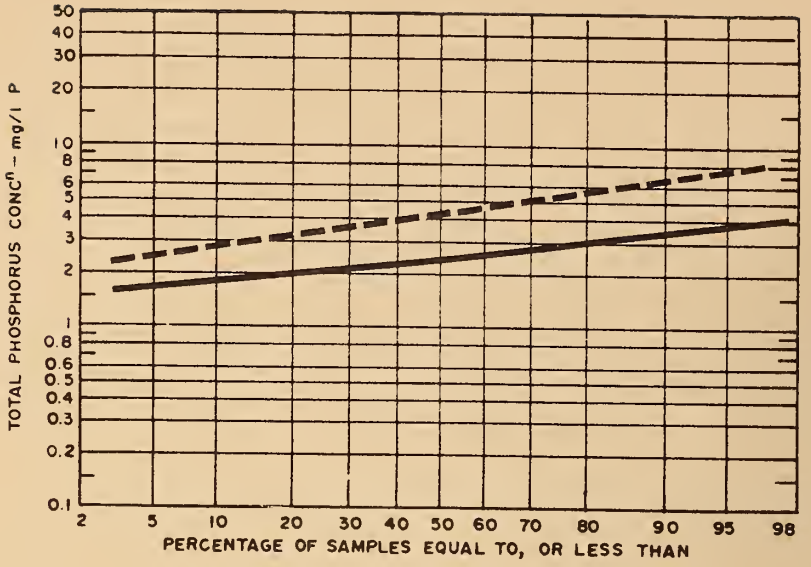


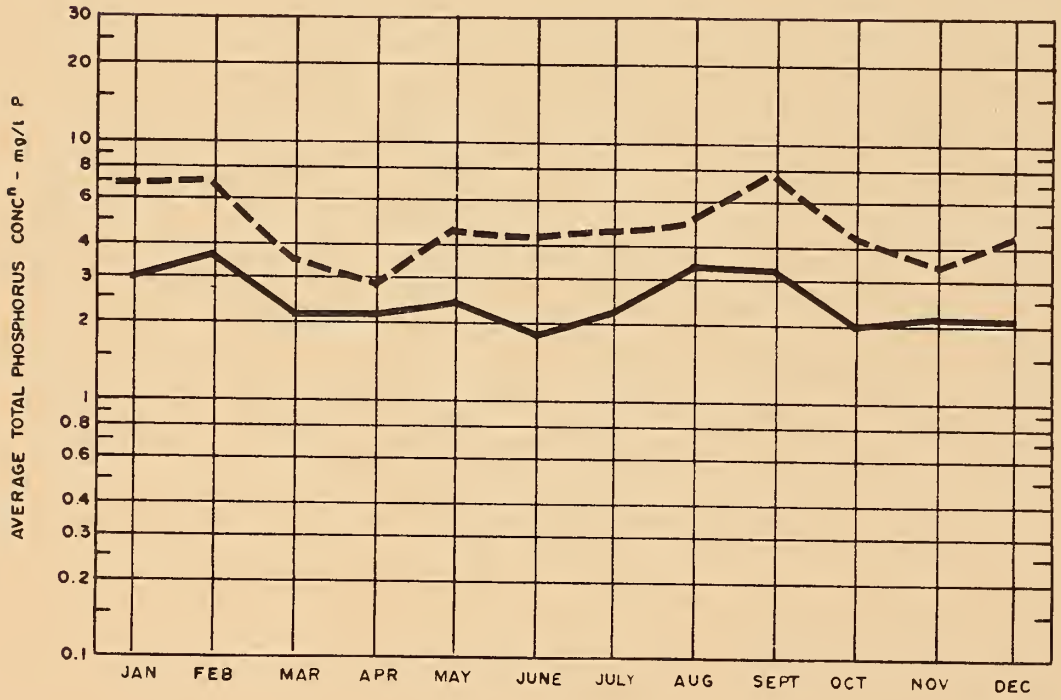


PLANT INFLUENT

PLANT EFFLUENT

PHOSPHORUS

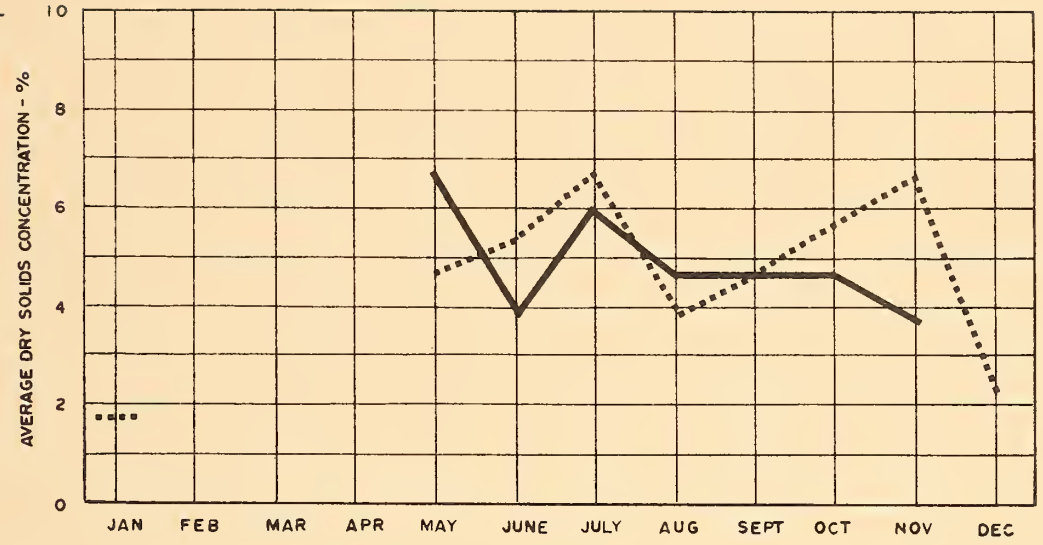




PLANT INFLUENT

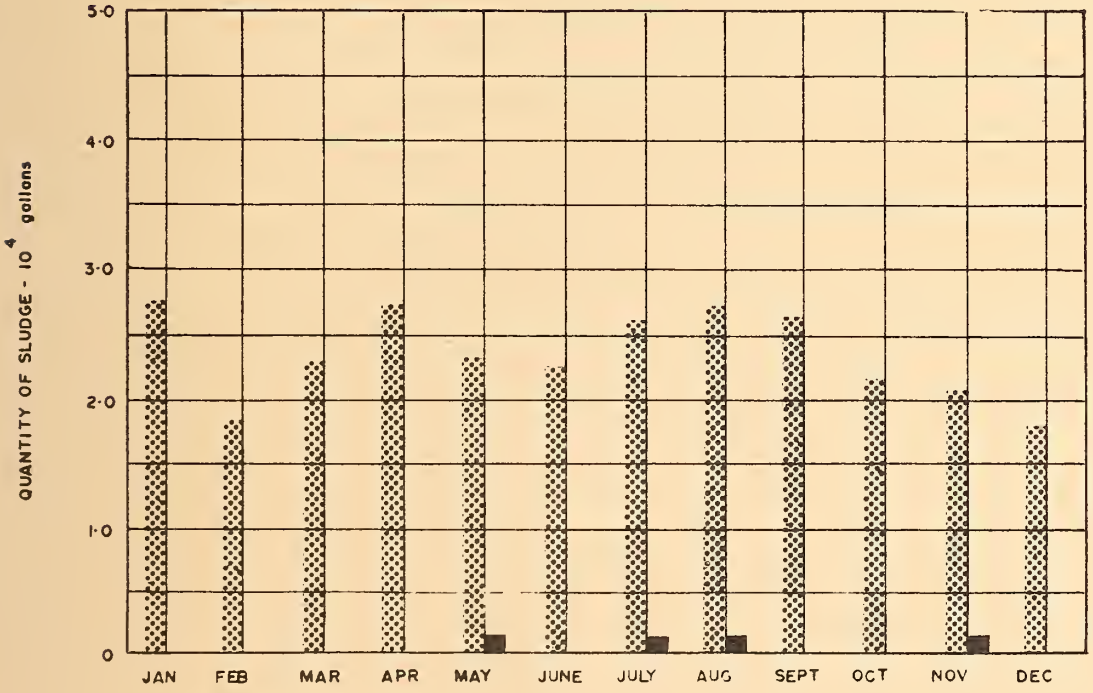
PLANT EFFLUENT

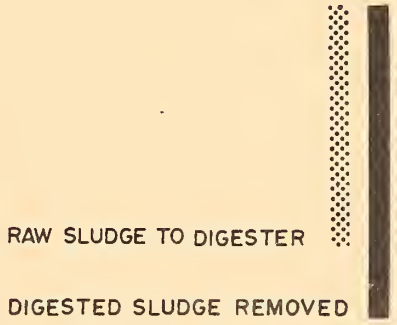
DIGESTION



RAW SLUDGE .....

DIGESTED SLUDGE ———





TREATMENT DATA

MONTH	GRIT	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
				RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT	
	QUANTITY REMOVED cubic feet	CHLORINE USED 10^3 pounds	AVERAGE DOSAGE mg/l	QUANTITY 10^3 gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10^3 gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	TOTAL SOLIDS %	SLUDGE HAULED cubic yards
JAN	2	0.9	3.2	27.5	1.7					< .1	
FEB		0.7	3.7	19.0						.1	
MAR		0.9	3.4	23.3						.2	
APR	27	1.3	2.4	27.2						.1	
MAY	63	1.1	3.5	24.4	4.7		1.3	6.6		.2	8
JUNE	47	1.3	4.0	22.9	5.4					.4	
JULY	43	1.1	5.1	25.9	6.8		1.3	5.9		.4	8
AUG	24	1.0	4.1	26.8	3.7		1.3	4.5		.4	8
SEPT	6	1.1	4.9	26.2	4.6					.2	
OCT	4	1.6	4.8	22.5	5.7					.5	
NOV	15	1.8	4.4	20.7	6.8		1.3	3.9		.6	8
DEC	20	1.7	4.8	18.2	2.2					.3	
TOTAL	251	14.5	–	284.6	–	–	5.2	–	–	–	32
AVG.	.7 cubic feet/mil gal	1.2	4.0	23.7	4.6		0.4	5.2		.3	3